

AMENDMENT

Please enter the following amendments:

IN THE CLAIMS

Claims 10, 16, 20, and 24 are currently amended. Claims 15, 18, 19 and 23 are canceled without prejudice or disclaimer toward pursuit of these claims in a related application. The status of all claims is as follows:

1-9. Canceled.

10. (Currently Amended) A catalyst structure, comprising:

(a) a first porous structure comprising a first pore surface area and a first pore size of at least 0.1 μm ;

(b) a buffer layer upon the first pore surface area;

(c) a porous interfacial layer comprising spinel with a second pore surface area and a second pore size less than the first pore size; the porous interfacial layer having a thickness less than 4 mm, disposed on the buffer layer;

(d) a steam reforming catalyst selected from the group consisting of rhodium, iridium, nickel, palladium, platinum, carbide of group ~~IVb~~ VIb and combinations thereof.

11. (Previously Presented) The catalyst structure of claim 10 wherein the steam reforming catalyst comprises a carbide selected from the group consisting of tungsten carbide, molybdenum carbide, and combinations thereof.

12. (Previously Presented) The catalyst structure of claim 10 wherein the steam reforming catalyst comprises Rh.

13. (Previously Presented) A steam reforming catalytic system comprising:
the catalyst of claim 10;
steam and hydrocarbon; and
hydrogen.

14. (Previously Presented) The catalyst structure of claim 10 wherein the spinel comprises Mg and Al.

15. Canceled

16. (Currently Amended) The catalyst structure of claim ~~15~~ 10 wherein the steam reforming catalyst is selected from the group consisting of rhodium, iridium, nickel, palladium, and platinum and combinations thereof.

17. (Previously Presented) The catalyst structure of claim 16 wherein the catalyst structure has stability such that, when tested in a packed bed at 900°C for 40 hours, at a steam to carbon ratio of 1:1 and a contact time of 25 msec, no coke deposition is revealed by electron microscopic examination.

18. Canceled.

19. Canceled.

20. (Currently Amended) The catalyst structure of claim ~~16~~10 further comprising a magnesia passivation layer disposed on the spinel.

21. (Previously Presented) The catalyst structure of claim 20 wherein a steam reforming catalyst is impregnated into the magnesia passivation layer.

22. (Previously Presented) The catalyst structure of claim 21 wherein the steam reforming catalyst comprises Rh.

23. Canceled.

24. (Currently Amended) The catalyst structure of claim ~~16~~10 made by steps comprising:
impregnating an alumina support with a solution of magnesium nitrate;

calcining; and, subsequently,

a step of impregnating with a catalyst metal.

25. (Previously Presented) The catalyst structure of claim 24 wherein the step of impregnating with a catalyst metal comprises impregnating with a rhodium nitrate solution.